

IN THE CLAIMS:

Please cancel Claims 137, 139, 154, 156, 161, and 169 without prejudice to or disclaimer of the subject matter contained therein.

Please amend Claims 122-131, 133, 138, 141-146, 147-150, 152-153, 155, 159-160, 162-163, 165, 167-168, and 170, and add new Claims 171-174, as follows.

1-121. (Cancelled)

122. (Currently Amended) An apparatus for generating annotation data for ~~use in~~ annotating a data file comprising audio data, the apparatus comprising:

an automatic speech recognizer operable to generate phoneme data for audio data in the data file;

a word decoder operable to process the phoneme data generated by the automatic speech recognizer to identify words within the phoneme ~~data generated by the automatic speech recognizer, and data;~~

an annotation generator operable to generate annotation data for the data file by combining the generated phoneme data and the words identified by said word decoder, the annotation data being for use in subsequent retrieval of the data file;

an associator operable to associate the generated annotation data with the data file;  
and

a storage device operable to store the annotation data in a database to allow the associated data file to be retrieved by searching for words and phonemes within the stored annotation data.

123. (Currently Amended) An apparatus for generating annotation data for ~~use in~~ annotating a data file, the apparatus comprising:

an input operable to receive an input voice signal;

a speech recognizer operable (i) to convert the input voice signal into phoneme data and words; and data and (ii) to process the phoneme data to identify words within the phoneme data;

an annotation generator operable to generate annotation data for the data file by combining the phoneme data and the words obtained by said speech recognizer, the annotation data being for use in subsequent retrieval of the data file;

an associator operable to associate the generated annotation data within the data file; and

a storage device operable to store the annotation data in a database to allow the associated data file to be retrieved by searching for words and phonemes within the stored annotation data.

124. (Currently Amended) An apparatus for generating annotation data for ~~use in~~ annotating a data file, the apparatus comprising:

an input operable to receive image data representative of text;

a character recognizer operable to convert ~~said~~ the image data into text data;  
a converter operable to convert words in the text data into phoneme data; and  
an annotation generator operable to generate annotation data for the data file by  
combining the phoneme data and words in the text data, the annotation data being for use in  
subsequent retrieval of the data file;

an associator operable to associate the generated annotation data with the data file;  
and

a storage device operable to store the annotation data in a database to allow the  
associated data file to be retrieved by searching for words and phonemes within the stored  
annotation data.

125. (Currently Amended) An apparatus according to claim 122, wherein ~~said~~ the  
annotation data defines a phoneme and word lattice and wherein said annotation generator  
comprises:

(i) a first generator operable to generate data defining a plurality of nodes within  
the lattice and a plurality of links connecting the nodes within the lattice;

(ii) a second generator operable to generate data associating a plurality of  
phonemes of the phoneme data with a respective plurality of links; and

(iii) a third generator operable to generate data associating at least one of the  
words with at least one of ~~said~~ the links.

126. (Currently Amended) An apparatus according to claim 125, wherein said annotation generator is operable to generate ~~said~~ the data defining ~~said~~ the phoneme and word lattice in blocks of ~~said~~ the nodes.

127. (Currently Amended) An apparatus according to claim 125, wherein said annotation generator is operable to generate data defining time stamp information for each of ~~said~~ the nodes.

128. (Currently Amended) An apparatus according to claim 127, wherein said annotation generator is operable to generate ~~said~~ the phoneme and word lattice data in blocks of equal time duration.

129. (Currently Amended) An apparatus according to claim 126, wherein said annotation generator is operable to generate data which defines each block's location within a the database.

130. (Currently Amended) An apparatus according to claim 127, wherein said data file includes a time sequential signal, and wherein said annotation generator is operable to generate time stamp data which is time synchronized with ~~said~~ the time sequential signal.

131. (Currently Amended) An apparatus according to claim 122, wherein ~~said~~ audio the data file includes audio data which defines the speech of a plurality of speakers, and

wherein said annotation generator is operable to generate data which defines separate phoneme and word annotation data for the speech of each speaker.

132. (Previously Presented) An apparatus according to claim 122, wherein said speech recognizer is operable to generate data defining a weighting for the phonemes in the phoneme data.

133. (Currently Amended) An apparatus according to claim 122, wherein said word decoder is operable to generate data defining a weighting for the words identified within ~~said~~ the phoneme data.

134. (Previously Presented) An apparatus according to claim 125, wherein said first generator is operable to define at least one node which is connected to a plurality of other nodes by a plurality of links.

135. (Previously Presented) An apparatus according to claim 123, wherein said speech recognizer is operable to generate data defining a weighting for the phonemes in the phoneme data.

136. (Previously Presented) An apparatus according to claim 135, wherein said speech recognizer is operable to generate data defining a weighting for the words.

137. (Cancelled)

138. (Currently Amended) An apparatus according to claim 124, wherein said converter comprises an automatic phonetic transcription unit which generates ~~said~~ the phoneme data from words within the text data output by said character recognizer.

139. (Cancelled)

140. (Previously Presented) An apparatus according to claim 124, wherein said input comprises a document scanner or a facsimile machine.

141. (Currently Amended) A method of generating annotation data for ~~use in~~ annotating a data file comprising audio data, the method comprising the steps of:

using an automatic speech recognizer to generate phoneme data for audio data in the data file;

using a word decoder to process the phoneme data generated by the automatic speech recognizer to identify words within the phoneme ~~data generated by the automatic speech recognizer; and~~ data;

generating annotation data for the data file by combining the generated phoneme data and the words identified by ~~said~~ the word decoder, the annotation data being for use in subsequent retrieval of the data file;

associating the generated annotation data with the data file; and

storing the annotation data in a database to allow the associated data file to be retrieved by searching for words and phonemes within the stored annotation data.

142. (Currently Amended) A method of generating annotation data for ~~use in~~ annotating a data file, the method comprising the steps of:

receiving an input voice signal;

processing the input voice signal using a speech recognizer to generate phoneme data ~~and word data~~ for the input voice signal; ~~and~~

processing the generated phoneme data to identify words within the phoneme data;

generating annotation data by combining the phoneme data and the word data generated for the input voice signal, the annotation data being for use in subsequent retrieval of the data file;

associating the generated annotation data with the data file; and

storing the annotation data in a database to allow the associated data file to be retrieved by searching for words and phonemes within the stored annotation data.

143. (Currently Amended) A method of generating annotation data for use in annotating a data file, the method comprising the steps of:

receiving image data representative of text;

converting ~~said~~ the image data into text data using a character recognizer;

converting words in the text data into phoneme data; ~~and~~

generating annotation data for the data file by combining the phoneme data and words within the text data, the annotation data being for use in subsequent retrieval of the data file;

associating the generated annotation data with the data file; and

storing the annotation data in a database to allow the associated data file to be retrieved by searching for words and phonemes within the stored annotation data.

144. (Currently Amended) A method according to claim 141, wherein ~~said~~ the annotation data defines a phoneme and word lattice and wherein said generating step comprises the steps of:

(i) generating data defining a plurality of nodes within the lattice and a plurality of links connecting the nodes within the lattice;

(ii) generating data associating a plurality of phonemes of the phoneme data with a respective plurality of links; and

(iii) generating data associating at least one of the words with at least one of ~~said~~ the links.

145. (Currently Amended) A method according to claim 144, wherein said generating step generates data defining time stamp information for each of ~~said~~ the nodes.

146. (Currently Amended) A method according to claim 145, wherein said generating step generates data which defines ~~each~~ a block's location within a database.



147. (Currently Amended) A method according to claim 145, wherein ~~said~~ the data file includes a time sequential signal, and wherein said generating step generates time stamp data which is time synchronized with ~~said~~ the time sequential signal.

148. (Currently Amended) A method according to claim 141, wherein ~~said~~ the audio data includes audio data which defines the speech of a plurality of speakers, and wherein said generating step generates data which defines separate phoneme and word annotation data for the speech of each speaker.

149. (Currently Amended) A method according to ~~claim 141~~ claim 144, wherein ~~said~~ the speech recognizer generates data defining a weighting for the phonemes associated with ~~said~~ the links.

150. (Currently Amended) A method according to ~~claim 141~~ claim 144, wherein ~~said~~ the word decoder generates data defining a weighting for the words associated with ~~said~~ the links.

151. (Previously Presented) A method according to claim 144, wherein said step of defining a plurality of nodes and a plurality of links defines at least one node which is connected to a plurality of other nodes by a plurality of links.

152. (Currently Amended) A method according to claim 142, wherein ~~said~~ the speech recognizer generates data defining a weighting for the ~~phonemes associated with said~~ links generated phoneme data.

153. (Currently Amended) A method according to claim 142, wherein said ~~speech recognizer~~ step of processing the generated phoneme data generates data defining a weighting for the words ~~associated with said links~~ identified within the phoneme data.

154. (Cancelled)

155. (Currently Amended) A method according to claim 143, wherein said step of converting words into phoneme data uses an automatic phonetic transcription unit which generates ~~said~~ the phoneme data for words within the text data output by ~~said~~ the character recognizer.

156. (Cancelled)

157. (Previously Presented) A method according to claim 143, wherein said receiving step uses a document scanner or a facsimile machine.

158. (Previously Presented) An apparatus according to claim 122, wherein said annotation generator is operable to generate annotation data that defines a phoneme and word lattice arranged in a time-ordered sequence of blocks.

159. (Currently Amended) An apparatus according to claim 158, wherein ~~said~~ the phoneme and word lattice is associated with a time-sequential signal, and wherein said annotation generator is operable to generate ~~said~~ the phoneme and word lattice so that:

(i) the time-ordered sequence of blocks of the phoneme and word lattice is time-synchronized with the time-sequential signal; and

(ii) each block of the phoneme and word lattice includes an associated time index identifying a timing of the block within the time-sequential signal.

160. (Currently Amended) An apparatus according to claim 159, wherein said annotation generator is operable to generate node data which defines a plurality of nodes within the lattice, each node representing a point in time at which a word and/or phoneme begins or ends within the associated time-sequential signal and wherein each node includes a time-offset value defining the point in time represented by the node relative to ~~said~~ the time index associated with the corresponding block.

161. (Cancelled)

162. (Currently Amended) An apparatus according to claim 122, wherein said automatic speech recognizer is operable to generate phoneme data that includes a phoneme lattice which identifies a number of different possible phoneme strings which correspond to speech within the audio data, and wherein said annotation generator is operable to generate ~~said~~ the annotation data by combining the generated phoneme lattice with the words identified by ~~the~~ said word decoder.

163. (Currently Amended) An apparatus according to ~~claim 123~~ claim 122, wherein said automatic speech recognizer is operable to generate phoneme data that includes a phoneme lattice which identifies a number of different possible phoneme strings which correspond to speech within the ~~audio data~~ input voice signal, and wherein said annotation generator is operable to generate ~~said~~ the annotation data by combining the generated phoneme lattice with the words identified by ~~the word decoder~~ said speech recognizer.

164. (Previously Presented) An apparatus according to claim 122, wherein said annotation generator is operable to generate header data relating to the speech recognizer that generated the phoneme data for the annotation.

165. (Currently Amended) An apparatus according to claim 164, when said annotation generator is operable to generate header data including data identifying the language and the phoneme sets used by ~~the~~ said automatic speech recognizer.

166. (Previously Presented) An apparatus according to claim 123, wherein said annotation generator is operable to generate header data relating to the speech recognizer that generated the phoneme data for the annotation.

167. (Currently Amended) An apparatus according to claim 166, wherein said annotation generator is operable to generate header data including data identifying the language and the phoneme sets used by ~~the~~ said automatic speech recognizer.

168. (Currently Amended) A computer readable medium storing computer program code for causing a programmable processing apparatus to become operable to generate annotation data for ~~use in~~ annotating a data file comprising audio data, the ~~code~~ computer readable medium comprising:

code for causing an automatic speech recognizer to generate phoneme data for audio data in the data file;

code for causing a word decoder to process the phoneme data generated by the automatic speech recognizer to identify words within the phoneme data represented by the automatic speech recognizer; and data;

code for generating annotation data for the data file by combining the generated phoneme data and the words identified by the word decoder, the annotation data being for use in subsequent retrieval of the data file;

code for associating the generated annotation data with the data file; and

code for storing the annotation data in a database to allow the associated data file to be retrieved by searching for words and phonemes within the stored annotation data.

169. (Cancelled)

170. (Currently Amended) A computer readable medium storing computer executable instructions for causing a programmable processing apparatus to become operable to generate annotation data for ~~use in~~ annotating a data file ~~comprising audio data~~, the medium comprising:

code for receiving an input voice signal;

code for causing an automatic speech recognizer to ~~generate~~ convert the input voice signal into phoneme data ~~for audio data in the data file;~~

code for processing the phoneme data to identify words within the phoneme data;

~~code for causing a word decoder to identify possible words within the phoneme data represented by the automatic speech recognizer; and~~

code for generating annotation data by combining the generated phoneme data and the identified words identified by said word decoder words, the annotation data being for use in subsequent retrieval of the data file;

code for associating the generated annotation data with the data file; and

code for storing the annotation data in a database to allow the associated data file to be retrieved by searching for words and phonemes within the stored annotation data.

171. (New) A method according to claim 144, wherein said generating step generates data defining the phoneme and word lattice in blocks of the nodes.

172. (New) A computer readable medium storing computer executable instructions for causing a programmable processing apparatus to become operable to generate annotation data for annotating a data file, the medium comprising:

- code for receiving image data representative of text;

- code for converting the image data into text data using a character recognizer;

- code for converting words in the text data into phoneme data;

- code for generating annotation data for the data file by combining the phoneme data and words within the text data, the annotation data being for use in subsequent retrieval of the data file;

- code for associating the generated annotation data with the data file; and

- code for storing the annotation data in a database to allow the associated data file to be retrieved by searching for words and phonemes within the stored annotation data.

173. (New) An apparatus for generating annotation data for use in annotating a data file comprising audio data, the apparatus comprising:

- an automatic speech recognizer operable to generate phoneme data for audio data in the data file;

- a word decoder operable to identify words within the phoneme data generated by said automatic speech recognizer; and

an annotation generator operable to generate annotation data by combining the generated phoneme data and the words identified by said word decoder and operable to generate header data relating to the speech recognizer that generated the phoneme data for the annotation, which header data includes data identifying the language and phoneme set used by said automatic speech recognizer.

174. (New) An apparatus for generating annotation data for use in annotating a data file, the apparatus comprising:

an input operable to receive an input voice signal;

a speech recognizer operable to convert the input voice signal into phoneme data and words; and

an annotation generator operable to generate annotation data by combining the phoneme data and the words and operable to generate header data relating to the speech recognizer that generated the phoneme data for the annotation, which header data includes data identifying the language and the phoneme set used by the speech recognizer.